By a series of lunar observations, and of the eclipses of the satellites of Jupiter, the mean result duly corrected, gives the longitude of Bombay Church 72° 54′ 43″ E., and of the Lighthouse 72° 53′ 36″ E. of Greenwich. The mean latitude found by 32 meridional observations of the sun and stars, duly corrected, was found to be 18° 56′ 7″ N. for the Church, and 18° 54′ 25″ for the Lighthouse.

Of the Difference of Longitudes found by Chronometer, and by correspondent Eclipses of the Satellites of Jupiter; with some supplementary Information relative to Madras, Bombay, and Canton; as also the Latitude and Longitude of Point de Galle and the Friar's Hood. By J. Goldingham, *Esq. F.R.S.* Read June 27, 1822. [*Phil. Trans.* 1822, *p.* 431.]

The longitude of Masulipatam Flagstaff by the eclipses is 81° 12′ 33″, and by the chronometer 81° 12′ 15″, which is so close an agreement, that the longitude of this important point of the coast may be regarded as correctly determined. Mr. Goldingham then details the observations by which he determined the latitude and longitude of Point de Galle Flagstaff, the mean of the former being 6° 0′ 50″ N., and the latter 80° 17′ 2″ E.; the longitude of Canton, deduced as the mean of Capt. Huddart's observations and his own, Mr. Goldingham gives as 113° 18′ 23″ East of Greenwich.

Observations on the Genus Planaria. *By* J. R. Johnson, *M.D. F.R.S.* Read June 27, 1822. [*Phil. Trans.* 1822, *p.* 437.]

In this paper the author confines his observations to four species of the above genus, which are delineated of their natural size in an annexed drawing. They are generally clustered under leaves, stones, or pieces of wood, in slow streams; they are very rapid and changeable in their movements, in consequence of the annular muscles of which the body consists; their texture, however, is so soft, as not to admit of accurate dissection, though the author was able to ascertain that the body consisted of one common cavity, with lateral cells, like that of the medicinal leach. In the *Planaria torva*, two ventral apertures are particularly distinct. The upper one gives passage to a long flexible tube, and the lower conducts to the ovarium; this tube they frequently project, and employ it in seizing worms and aquatic insects; they also receive their food by this organ, and not exclusively by the mouth, as the author proved by presenting an earth worm to one of the *Planariæ lacteæ*, from which he had removed the head; it soon affixed itself, and became distended by food. When, however, the animal is injured, or loses this tube, it then takes sustenance by the mouth. Though he has repeatedly seen the young of the *Planaria torva* and *Planaria cornuta*, the author has not determined whether they are oviparous or viviparous. The *Planaria lactea* and *Planaria brunnea* are oviparous, producing eggs within a

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membranous capsule, each of which produces from 3 to 8 young, which, on escaping from the egg, are of various sizes, and very active.

But the most singular part of the history of these animals is, that they not only perpetuate their species as above described, but also by a natural division of their body into two portions, the head part reproducing a tail, and the tail a head in about fourteen days. These appearances are represented in annexed drawings, and several experiments are detailed in further illustration of their reproduction, showing that a perfect animal is producible.

Some Experiments and Researches on the Saline Contents of Sea-water, undertaken with a view to correct and improve its Chemical Analysis. By Alexander Marcet, *M.D. F.R.S. Honorary Professor of Chemistry at Geneva.* Read June 27, 1822. [*Phil. Trans.* 1822, *p.* 448.]

At the commencement of this paper Dr. Marcet, after adverting to the conclusions at which he arrived in some former researches communicated to this Society, notices the extraordinary assertions of Rouelle and of Proust respecting the existence of mercury in sea water. By a very careful examination, however, of bay salt, he was unable to detect the smallest trace of that metal; nor did he find it in a sample of Sel de Gabelle obtained from Calais for the purpose of examination.

Dr. Marcet next examined sea water, with a view of ascertaining whether any nitrates are present in it: with this view he added sulphuric acid and gold leaf to the concentrated bittern, and boiled the mixture, but the metal was not in the least acted on; when, however, the smallest quantity of nitre was added, the gold was instantly dissolved. Hence the absence of nitric salts in sea water may be inferred.

In examining some of the same bittern for earthy and metallic salts, the author found that neither alkalies nor their carbonates throw down anything but magnesia, and that no muriate of lime appears in any case to be present. Selenite and carbonate of lime were, however, found in the matters deposited during the first evaporation of the transparent and pure sea water.

When sea water is evaporated to dryness, and the residue submitted to distillation at a red heat, Dr. Marcet found that a portion of sal-ammoniac sublimed. Lastly, he observes, that no sulphate of soda is discoverable in sea water, but that it affords, on evaporation along with other salts, certain rhombic crystals, which are triple sulphate of potash and magnesia.